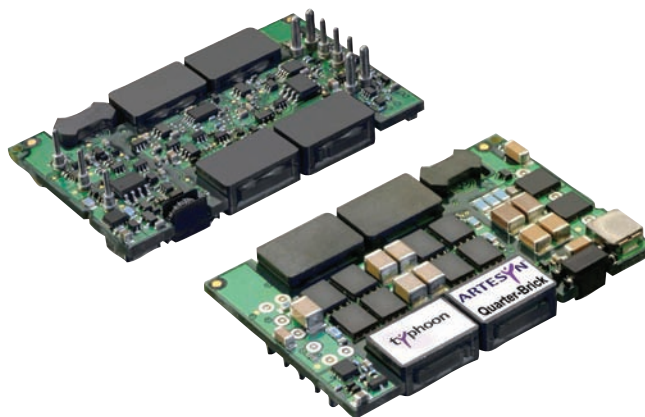


## LQS Series

### Quarter-Brick Series

**Total Power:** 200 Watts  
**Input Voltage:** 36 V to 75 V  
**# of Outputs:** 1



### Special Features

- Ultra high efficiency topology
- Unprecedented useable output power levels
- High power density (200 W/in<sup>3</sup>) open-frame technology
- Wide ambient temperature range, -40 °C to +85 °C
- 80% to 110% output trim
- Monotonic start-up in normal and prebiased loads
- Basic insulation system
- Overvoltage and overtemperature protection
- Secondary side control, no optocouplers, fast transient response
- 100 V, 100 ms input transient rated
- Available RoHS compliant

## Electrical Specifications

### Input

|                             |                     |                              |
|-----------------------------|---------------------|------------------------------|
| Input voltage range:        | 24 V nominal        | 18 - 36 Vdc                  |
|                             | 48 V nominal        | 36 - 75 Vdc                  |
| Input current:              | No load             | 85 mA to 150 mA              |
|                             | Remote OFF          | 5 mA                         |
| Active high remote ON/OFF:  | Logic compatibility | Open collector ref to -input |
|                             | ON                  | Open circuit or > 2.4 Vdc    |
| Undervoltage lockout:       | Power up            | 35.5 V (typ.)                |
|                             | Power down          | 33.5 V (typ.)                |
| Start-up time (See note 2): | Power up            | 10 ms (typ.)                 |
|                             | Remote ON/OFF       | 10 ms (typ.)                 |

### Output

|                                  |                         |                                         |
|----------------------------------|-------------------------|-----------------------------------------|
| Voltage adjustability:           |                         | 80% to 110%                             |
| Minimum load:                    |                         | 0%                                      |
| Overshoot                        | At turn-on and turn-off | None                                    |
| Undershoot:                      |                         | None                                    |
| Transient response: (See note 1) |                         | 70 mV, typ. deviation<br>20 µs recovery |

### Safety

UL, cUL 60950-1 Ed 2  
CSA C22.2 No 60950-1 Ed 2  
VDE EN60950-1:2006 + A11:2009



## Electrical Specifications continued

| EMC Characteristics          |                                                     |                               |
|------------------------------|-----------------------------------------------------|-------------------------------|
| Immunity:                    |                                                     |                               |
| ESD air enclosure:           | EN61000-4-2 8 kV/6 kV (O/P within spec.)            |                               |
| Radiated field enclosure:    | EN61000-4-3 10 V/m (O/P within spec.)               |                               |
| Conducted:                   | EN61000-4-6 10 V (O/P within spec.)                 |                               |
| Input transients:            | 100 V, 100 ms                                       |                               |
| General Characteristics      |                                                     |                               |
| Basic insulation:            | Input/output                                        | 2250 Vdc                      |
| Switching frequency:         | Fixed                                               | 480 kHz                       |
| Approvals and standards:     | (See Note 3)                                        | EN60950-1 VDE, UL/cUL 60950-1 |
| Material flammability:       |                                                     | UL94V-0                       |
| Weight:                      |                                                     | 37g (1.30 oz)                 |
| MTBF:                        | Telcordia Tech SR-332                               | 3,866,933 hours               |
| Environmental Specifications |                                                     |                               |
| Thermal performance:         | Operating ambient temperature                       | -40 °C to +85 °C              |
|                              | Non-operating                                       | -55 °C to +125 °C             |
| Protection                   |                                                     |                               |
| Short-circuit                | Continuous                                          |                               |
| Overvoltage                  | Non-latching                                        |                               |
| Thermal                      | 125 °C hot spot temperature with automatic recovery |                               |

## Ordering Information

| Output Voltage            | Input Current Max. <sup>4</sup> | Input Ripple Current <sup>5</sup> | Output Current Max. | Efficiency typ. | Regulation              |        |        | Ripple & noise (pk-pk) | Model Number <sup>6,8, 9,10</sup> |
|---------------------------|---------------------------------|-----------------------------------|---------------------|-----------------|-------------------------|--------|--------|------------------------|-----------------------------------|
|                           |                                 |                                   |                     |                 | Set point accuracy Max. | Line   | Load   |                        |                                   |
| 48 Vin VALUE MODELS       |                                 |                                   |                     |                 |                         |        |        |                        |                                   |
| 1.2 V                     | 1.92 A                          | 150 mA                            | 50 A                | 88.5%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS50A48-1V2J                     |
| 1.5 V                     | 2.36 A                          | 150 mA                            | 50 A                | 89.5 %          | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS50A48-1V5J                     |
| 1.8 V                     | 2.82 A                          | 150 mA                            | 50 A                | 90.4%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS50A48-1V8J                     |
| 48 Vin PERFORMANCE MODELS |                                 |                                   |                     |                 |                         |        |        |                        |                                   |
| 1.2 V                     | 4.05 A                          | 250 mA                            | 100 A               | 86.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS100A48-1V2J                    |
| 1.5 V                     | 3.8 A                           | 200 mA                            | 80 A                | 88.8%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS80A48-1V5J                     |
| 1.8 V                     | 4.6 A                           | 200 mA                            | 80 A                | 90.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS80A48-1V8J                     |
| 2.5 V                     | 4.1 A                           | 200 mA                            | 50 A                | 90.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS50A48-2V5J                     |
| 3.3 V                     | 5.2 A                           | 200 mA                            | 50 A                | 91.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS50A48-3V3J                     |
| 48 Vin ULTRA MODELS       |                                 |                                   |                     |                 |                         |        |        |                        |                                   |
| 1.5 V                     | 4.8 A                           | 200 mA                            | 100 A               | 88.5%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS100A48-1V5J                    |
| 1.8 V                     | 5.7 A                           | 200 mA                            | 100 A               | 89.5%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS100A48-1V8J                    |
| 2.5 V                     | 6.2 A                           | 200 mA                            | 80 A                | 91.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS80A48-2V5J                     |
| 3.3 V                     | 6.2 A                           | 200 mA                            | 60 A                | 91.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS60A48-3V3J                     |
| 5 V                       | 6.2 A                           | 200 mA                            | 40 A                | 92.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS40A48-5V0J <sup>(7)</sup>      |
| 5 V                       | 6.2 A                           | 200 mA                            | 40 A                | 91.8%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS40A48-5V0GJ <sup>(11)</sup>    |
| 24 Vin MODELS             |                                 |                                   |                     |                 |                         |        |        |                        |                                   |
| 1.8 V                     | 3.4 A                           | 200 mA                            | 30 A                | 91.0%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS30A24-1V8J                     |
| 3.3 V                     | 6.5 A                           | 300 mA                            | 30 A                | 89.5%           | ± 1.5%                  | ± 0.1% | ± 0.2% | 60 mV                  | LQS30A24-3V3J                     |

### LQS60A48-3V3RANJ

**L** = Low Profile  
**Q** = 1/4 Brick  
**Type of Output**  
**S** = Single  
**Rated Output Current**  
 40 A = 40 Amps, 60 A = 60 Amps etc.  
**Nominal Rated Input Voltage**  
 24 = 24 Volts (18 Vdc to 36 Vdc range)  
 48 = 48 Volts (36 Vdc to 75 Vdc range)  
**Output Voltage**  
 1V5 = 1.5 Volts, 1V8 = 1.8 Volts etc.

**RoHS Compliance <sup>(9)</sup>**  
**J** = Pb-free (RoHS 6/6 compliant)

**Pin Length Options**  
 Blank = 0.188" (4.78 mm)  
**N** = 0.145" (3.68 mm)  
**K** = 0.110" (2.79 mm)

**Body Height, Package Type, and Pin Length**  
**A** = 0.300" (7.62 mm), Through hole,  
 0.188" (4.78mm) Pins  
**E** = 0.340" (8.64 mm), Through hole,  
 0.188" (4.78mm) Pins  
**S** = 0.28" (7.11 mm), Surface Mount <sup>(6)</sup>

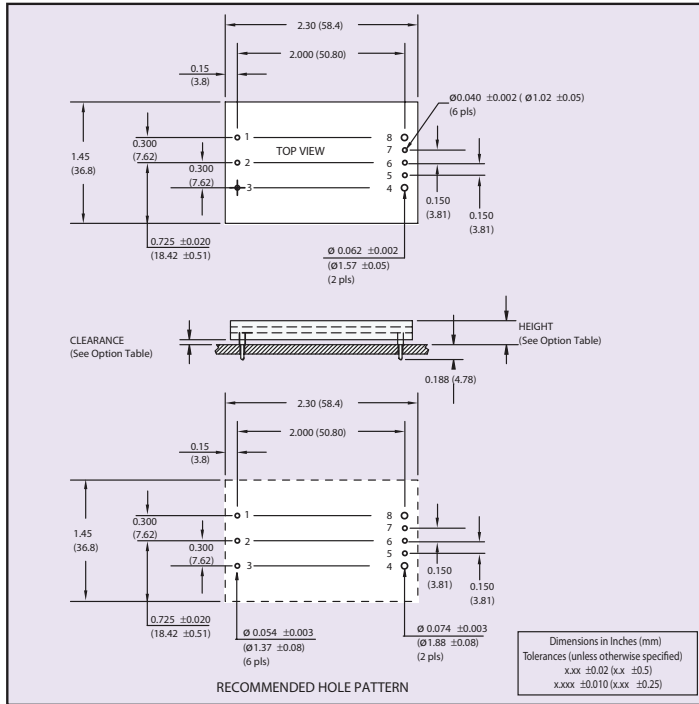
**Remote ON/OFF Logic <sup>(8)</sup>**  
 Blank = Positive  
**R** = Negative

#### Notes:

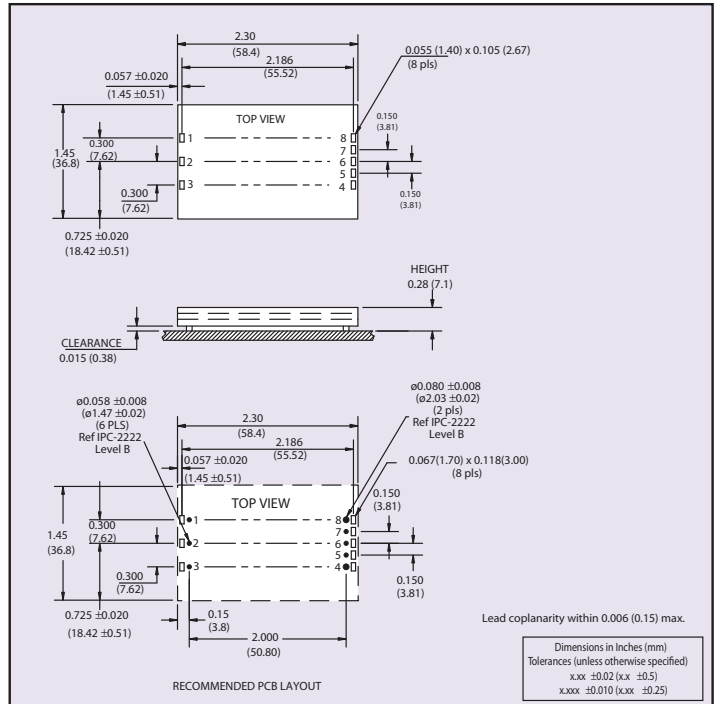
1. di/dt = 1 A/us, Vin = 48 Vdc, Tc = 25 °C, load change = 50% to 75% Io max. and 75% to 50% Io max. Deviation varies by model. For further details see longform datasheet
2. Start-up into resistive load.
3. This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
4. Recommended input fusing is up to 10 A HRC 200 V rated fuse.
5. Peak to peak measured without external  $\pi$  filter. Significant reduction possible with external filter. See Application Note 141 for further details.

6. 'S' option applies to the 24 V models only.
7. Except LQS40A48-5V0J which has the double output pins.
8. Active low Remote ON/OFF is available. Standard product is Active High. When ordering active low parts, designate with the suffix 'R' e.g. **LQS100A48-1V8RAJ**
9. TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
10. NOTICE: Some models do not support all options. Please contact your local sales representative or use the on-line model number search tool at [www.PowerConversion.com](http://www.PowerConversion.com) to find a suitable alternative.
11. LQS40A48-5V0GJ has single output pins /0.188" pin length/0.340" body height

## Mechanical Drawings



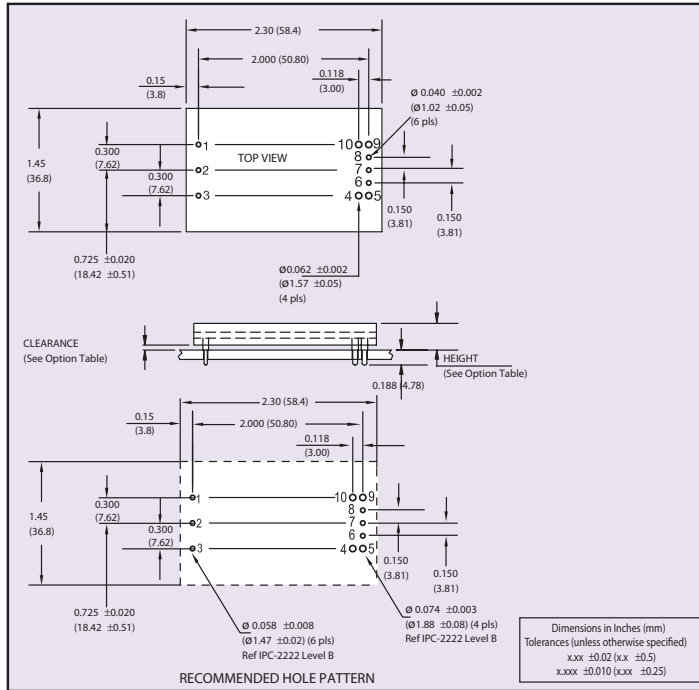
24 V/ 48 V Mechanical Drawing for Output Current of 50 A or less  
(See Note 7)



24 V Surface-mount Mechanical Drawing and Pinout Table

| Pin Connections |          |            |          |
|-----------------|----------|------------|----------|
| Pin Number      | Function | Pin Number | Function |
| 1               | +Vin     | 5          | -Sense   |
| 2               | ON/OFF   | 6          | Trim     |
| 3               | -Vin     | 7          | +Sense   |
| 4               | -Vout    | 8          | +Vout    |

| Dimension Options |                |                                |
|-------------------|----------------|--------------------------------|
| Option            | Clearance      | Height                         |
|                   | ± 0.016 (0.41) | +0.022 (0.56)<br>-0.030 (0.76) |
| A                 | 0.030 (0.76)   | 0.300 (7.62)                   |
| E                 | 0.070 (1.78)   | 0.340 (8.64)                   |



48 V Mechanical Drawing for Output Current Greater than 50 A  
"The Double P" Pinout (7)

## Americas

5810 Van Allen Way  
Carlsbad, CA 92008  
USA  
Telephone: +1 760 930 4600  
Facsimile: +1 760 930 0698

## Europe (UK)

Waterfront Business Park  
Merry Hill, Dudley  
West Midlands, DY5 1LX  
United Kingdom  
Telephone: +44 (0) 1384 842 211  
Facsimile: +44 (0) 1384 843 355

## Asia (HK)

14/F, Lu Plaza  
2 Wing Yip Street  
Kwun Tong, Kowloon  
Hong Kong  
Telephone: +852 2176 3333  
Facsimile: +852 2176 3888

For global contact, visit:

[www.PowerConversion.com](http://www.PowerConversion.com)  
[techsupport.embeddedpower@emerson.com](mailto:techsupport.embeddedpower@emerson.com)

While every precaution has been taken to ensure accuracy and completeness in this literature, Emerson Network Power assumes no responsibility, and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

**Emerson Network Power.**  
The global leader in enabling  
business-critical continuity.

- AC Power
- Connectivity
- DC Power
- Embedded Computing
- Embedded Power**
- Monitoring
- Outside Plant
- Power Switching & Controls
- Precision Cooling
- Racks & Integrated Cabinets
- Services
- Surge Protection

**EmersonNetworkPower.com**

Emerson Network Power and the Emerson Network Power logo are trademarks and service marks of Emerson Electric Co.  
©2010 Emerson Electric Co.